

REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1 and 7 have been amended. Claim 4 has been cancelled. Claims 1-3 and 5-7 are pending and under consideration.

CLAIM REJECTIONS

Claims 1, 4 and 5 were rejected under 35 USC 102(b) as being anticipated by Mutoh et al. (US 6,068,408) (hereinafter "Mutoh '408").

Claims 2, 6 and 7 were rejected under 35 USC 103(a) as being unpatentable over Mutoh '408 in view of Mutoh et al. (US 6,074,099) (hereinafter "Mutoh '099").

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Mutoh '408 in view of Yamamoto et al. (US 2003/0012461) (hereinafter "Yamamoto").

Mutoh '408 discusses a cage for a rolling bearing. In the eighth embodiment discussed in Mutoh '408, to form pockets 8 in a cage 28a, a pair of elastic pieces 12 is disposed on a main portion 7 while being separated from each other, and chamfers 23a are formed on the side portions of the recessed face 20 (the bottom of each pocket 8) between the pair of elastic pieces. Also in the eighth embodiment, a lubricant can efficiently enter the clearance between the rolling surface of the ball and a holding recess 11 via the chamfers 23a, with the result that the possibility of inducing vibrations and noises called a cage sound is lowered. Mutoh '408, 11:66-12:9 and Figure 11.

Mutoh '099 discusses a cage for a ball bearing. One object of the cage discussed in Mutoh '099 is to provide a cage for the ball bearing wherein lubricant is efficiently supplied to the clearances between the cage and the balls in the cage. Mutoh '099, 4:30-4:34.

One embodiment of Mutoh '099 shows where the spherical surface portion 15 is divided by two grooves 20 into three surface portions. Any number of grooves 20 can be provided so long as the smooth rotation of balls is secured. Mutoh '099, 10:5-10:9 and Figures 11 and 12.

Claims 1-5

Amended claim 1 recites: "...wherein a radial thickness of a portion of the retainer body adjacent each pocket is greater than a radial thickness of a portion of the retainer body not adjacent each pocket." Support for this amendment may be found in at least original claim 4. The Office Action relies on Mutoh '408 to disclose this feature of claim 1. Specifically, the Examiner refers to Figure 11 of Mutoh '408. However, as seen in Figure 11 of Mutoh '408, the

main portion 7 of the cage 28a has the same radial thickness of the pocket 8. It appears that the Examiner is relying on the pair of elastic pieces 12 disposed on the main portion 7. However, it is respectfully submitted that the elastic pieces are not a part of the main portion 7, which as previously noted, has the same radial thickness as the pocket 8 in Mutoh '408.

Because the main portion 7 has the same radial thickness as the pocket 8, it is respectfully submitted that Mutoh '408 does not anticipate the feature of claim 1 where a radial thickness of a portion of the retainer body adjacent each pocket is greater than a radial thickness of a portion of the retainer body not adjacent each pocket.

This technical feature of claim 1 makes it possible to effectively suppress rubbing sounds which would be generated as a result of contact between the retainer and an inner peripheral surface of an outer race and/or an outer peripheral surface of an inner race, particularly in the case of application to a bearing having a large diameter and a small wall thickness. When the retainer body of claim 1 has a relatively small wall thickness, a lubricant such as grease can be retained in a gap between the retainer and the inner peripheral surface of the outer race and/or the outer peripheral surface of the inner race for the smooth introduction of such lubricant into the pocket. Because of this, not only can lubrication at those areas of sliding contact be maintained advantageously in a favorable condition, but any undesirable generation of vibrations and noises from those areas of contact can also be further suppressed efficiently. Further, this technical feature makes it possible to effectively suppress generation of rubbing sounds as a result of contact between the ball retainer and the inner peripheral surface of an outer race and/or the outer peripheral surface of an inner race.

Claim 4 has been cancelled. Claims 2, 3 and 5 are dependent on claim 1 and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

Claim 6

Claim 6 recites: "...a radial thickness of a portion of the retainer body adjacent each ball bearing surface is greater than a radial thickness of a portion of the retainer body disposed axially outward of the lubricant reservoir groove and circumferentially between adjacent pockets." It is respectfully submitted that neither Mutoh '408 nor Mutoh '099 discusses this feature of claim 6.

Withdrawal of the foregoing rejection is requested.

Claim 7

Amended claim 7 recites: "...a radially disposed intersecting lubricant reservoir bottom groove, intersecting the ball bearing surfaces and the non-contact surface area..." Support for this amendment may be found in at least the paragraph beginning on page 9, line 9, of the present application or in Figures 1 and 5 of the present application. In the Office Action, the Examiner relies on Mutoh '099 reference as disclosing this feature of claim 7. The portion of Mutoh '099 cited by the Examiner, 4:30-4:34, discloses: "another object of the present invention is to provide a cage for the ball bearing wherein lubricant is efficiently supplied to the clearances between the cage and the balls in the cage." This section of Mutoh '099 does not discuss a lubricant reservoir bottom groove as recited in claim 7.

Mutoh '099 does show grooves in Figure 11. Figure 11 of Mutoh '099 shows where the spherical surface portion 15 is divided by two grooves 20 into three surface portions. However, neither of the grooves is at the bottom of the spherical surface portion or could perform the function of a reservoir groove and therefore a reservoir bottom groove is not shown in Mutoh '099. This deficiency in Mutoh '099 is not cured by Mutoh '408, which does not show or discuss lubricating grooves. The grooves recited in claim 7 can suppress vibrations and noises which are generated from the slide contact area between each ball 2 and the corresponding pocket.

Withdrawal of the foregoing rejection is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: January 3, 2007

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